EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 11071115
PUBLICATION DATE : 16-03-99

APPLICATION DATE : 18-06-98
APPLICATION NUMBER : 10187031

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$$\{Li\}\ [Li_x \cdot M_y \cdot Mn_{(2-x-y)}]\ O_{4+d}$$

INT.CL. : C01G 45/00 C01G 49/00 C01G 51/00 C01G 53/00 H01M 4/02 H01M 4/58 H01M 10/40

TITLE : LITHIUM MANGANESE-BASED OXIDE, HAVING SPINEL STRUCTURE AND CONTAINING ANOTHER KIND OF ELEMENT, ITS PRODUCTION AND USE THEREOF

ABSTRACT : PROBLEM TO BE SOLVED: To suppress the elution of Mn in an organic electrolytic solution of a lithium secondary battery by using a lithium manganese-based oxide having a spinel structure of a specific chemical composition containing at least another kind of element other than Li and Mn as a material of a positive electrode.

SOLUTION: This lithium manganese-based oxide having a spinel structure is represented by the formula [the interior of { } denotes the position of an oxygen tetrahedron in the structure; the interior of [ ] denotes the position of an oxygen octahedron in the structure; $0<(x)\leq 0.33$; $0<(y)\leq 1$; $-0.5<(d)<0.8$] and contains at least another element (M) other than Li and Mn. The crystal structure is a cubic crystal and the lattice constant (a) is ≥8.19 and ≤8.24 Å. The other element M is selected from Be, Mg, Ca, Y, Ti, V, Cr, Fe, Cu, B, Al, Si, Pb, P and the like. Furthermore, the oxide preferably has 1-50 μm average agglomerated particle diameter, 0.1-5 m^2/g BET specific surface area and ≤3 μm average primary particle diameter. The lithium manganese-based oxide containing the other element is produced by mixing respective compounds of the Mn, Li and the other element and baking the resultant mixture.

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